Missouri
Department of
Natural Resources

Response to Comment(s)
On Rule in Development

Rule number: **10 CSR 10-6.368**

Rule Title: **Control of Mercury Emissions From Electric Generating Units**

Type of rulemaking: New Rule

Response to Comments From Aquila, Inc.

Comment: The EPA model CAMR adjusts existing unit's mercury allocations by a factor of 1.25 when burning sub-bituminous coal. The existing rule however does not provide that same allocation for newer units and their allowance factor remains at 1.00. It is our understanding that units such as Hawthorn Station 5A, constructed in 2001, would be classified as a "newer" unit under EPA's CAMR model rules. As such allocation of newer units should be 1.00 not the 1.25 factor that is in the current draft Missouri rules. Specific to Hawthorn, it should be pointed out in previous meetings and discussions among the utilities as part of the Missouri Electric Utility Environmental Committee (MEUEC) the 1.00 factor for estimating the mercury allowances that would be allocated to Hawthorn was always utilized. We are uncertain why this factor was changed. It was not until the table was provided by the department that Aquila became aware Hawthorn's allocation was being increased.

One of the major reasons EPA has a different allocation for new units is their efficiency is better than an existing older unit. EPA stated in the May 18, 2005 edition of the Federal Register that the Energy Information Administrations (EIA) claims a 7,900 Btu per kilowatt-hour heat rate is an average of heat-rates from new pulverized coal and IGCC coal plants based upon assumptions in EIA's Annual Energy Outlook (AEO) 2004. Aquila's units currently have an average heat rate of approximately 10,500 Btu per kilowatt hour, meaning it may require up to 25% more coal to produce the same MW generation of a new unit. Aquila believes the 7,900 Btu per kilowatt-hour likely reflects more IGCC heat-rates, however attached is a presentation made in 1997 by Babcock and Wilcox that shows a state of the art sub-critical pulverized coal-fired plant designed to meet NSPS has a heat rate of 9,100 Btu per kilowatt hour. Setting a newer unit such as Hawthorn's mercury allocation factor at 1.25 does not take into account the greater efficiency from being a newer boiler.

Aquila therefore respectfully requests that the department utilize the model allocation that EPA has suggested be used for allocation mercury allowances with reference to newer units and the allowance factor for the Hawthorn facility be adjusted back to 1.0.
Response: The program has adjusted the allocation table to reflect this and other comments received.

Response to Comments of the Kansas City Power and Light.

Comment: Within the workgroup process compromises were made as the rule was developed. For example, KCP&L believes that the Energy Conservation pool of NOx allowances could have been better used by being allocated to existing units. In addition, the tire-derived fuel provision provides extra allowances to utilities that burn tire-derived fuel. KCP&L currently would not utilize the benefits of the latter provision. Compromises were, however, reached on these issues.

The participant utilities agreed early in the process that the allocation of NOx allowances to all existing units in the state should be treated the same. The federal rule had provided for special provisions for "new units" that went on line after January 1, 2001. These provisions would have unfairly impacted Hawthorn 5A, the only "new unit" in the state, which started operations in May of 2001, just a few months past the deadline. The "new unit" provisions would have adjusted the average heat input used to allocate NOx allowances based on a heat rate of 7900 BTUs/KWHr. This adjustment is based on an assumption made by EPA that new units will operate at this heat rate level. KCP&L has over four years worth of CEM data on Hawthorn 5A that shows that its heat rate over that period has averaged around 10,500 BTUs/KWHr, consistent with our existing coal-fired units. To adjust allocations based on the "new unit" approach would have unjustly penalized the only "new unit" in the state. The other utilities in the state agreed to this approach for NOx allocations during the stakeholder process.

In its proposed rules, the department decided to treat allocations for mercury on the same basis as NOx, treating all existing units alike. KCP&L agrees with this approach and encourages the state to maintain it in the final rule. To do otherwise would again penalize "new units" by treating them differently from existing units. In Missouri's case this singles out only one unit in the state, Hawthorn 5A. The state's proposal decided to follow the model federal rule in allowing existing units that burn sub-bituminous coal to increase their heat input by a factor of 1.25 before calculating the allowance distribution based on each unit's proportional share of state-wide heat input. The utilities in the state agreed with this approach in the stakeholder process. The federal proposal, however, would deny this heat input factor to new units, those put in service after 2001, and would once again single out Hawthorn 5A as the only unit in the state that meets the new definition.

One utility in the state disagrees with the approach taken by the department and has commented that the proposed rule should be changed. KCP&L disagrees and supports the position taken by the department that the state rule should be consistent between the NOx allocations and the Mercury allocations, since all units are treated as existing units for NOx, the same should hold true for Mercury. Any federal assumption that "new units" are more easily controlled for mercury is not necessarily any more accurate than the assumption that "new units" can easily achieve a heat rate of 7900 BTUs/KWHr, an assumption that Hawthorn 5A's CEM data proves to be false. KCP&L has not yet installed any mercury control equipment at Hawthorn 5A and therefore does not have any more advantage over other state utilities for mercury control at their units.

In conclusion KCP&L supports the language in the proposed rule as your department after many months of review and participation by interested participants currently proposes it. Hawthorn 5A should be treated the same as all other electric generating units in the state.

Response: The program has amended the mercury allocations in response to several comments received. It is apparent to the program that the majority of the workgroup believes that the allocations should treat Hawthorne 5A as a new unit. Therefore, the weighting factor for this unit was adjusted from 1.25 to 1.0 and the table in the proposed rule was adjusted accordingly.

Response to Comments of the U.S. Environmental Protection Agency.

Comment: Subsection (1)(A) – This provision needs to be revised to reflect the applicability provisions finalized on June 9, 2006. In addition, EPA notes that some of the cross-references in the current Subsection (1)(A) are not correct. Subsection (1)(A)1. – "Except as provided in subsection (B) of this section…" should read "Except as provided in **paragraph 2.** of this subsection...". Retired units continue to be Hg Budget units. Subsection (1)(A)2. – "…the unit shall be subject to subsection (A) of this section…" should read "…the unit shall be subject to **paragraph 1.** of this subsection…"
Response: The program has amended the proposed language as suggested.

Comment: Subsection (1)(B) – EPA suggests that Missouri incorporate by reference the retired unit exemption provision (§60.4105) in the model rule rather than reproducing in Missouri's rule the language of the model rule provision. Incorporation by reference would remove the potential for unintentional errors and facilitate Missouri's adoption of future changes in the model rule provision. If Missouri prefers to reproduce the exemption provision, the corrections below for Subsections (1)(B) and (C) should be made.
Response: The program has amended the proposed language as suggested.

Comment: Subsection (1)(B)3. – This should read "After receipt of the statement under paragraph **(B) 2.** of this subsection, the permitting authority will amend any permit under §60.4120 through §60.4124, as incorporated by reference in section (3) of this rule, covering the source at which the unit is located to add the provisions and requirements of the exemption under paragraph **(B)1.** and subsection **(C)** of this section."
Response: The program has amended the proposed language as suggested.

Comment: Subsection (1)(C)1. through 7. – All references to "subsection (A)" – should be replaced with "**subsection (B)1.**" The purpose of this reference is to identify the provision that provides the retired unit exemption.
Response: The program has amended the proposed language as suggested.

Comment: Subsection (2) – Definitions – It is stated that definitions of certain terms in this rule can be found in 10 CSR 10-6.020, but the definitions are incorporated by reference in subsection (3)(A). Missouri needs to add a statement that, if the Missouri definition for a term is different from the CAMR definition for that term, than the CAMR definition applies.
Response: The program has amended the proposed language as suggested.

Comment: Subsection (3)(B)1.A. – Date should be **November 17, 2006**. (See 40 CFR 60.24(h)(6)(ii)(C).)
Response: The program has amended the proposed language as suggested.

Comment: Subsection (3)(C)1. – EPA suggests that this provision state the Missouri state budget amounts (in ounces), rather than referring to the "approved state implementation plan". For example, this provision could read "The state trading program Hg budget allocated by the director under paragraph 2. of this subsection for a calendar year will equal 44,576 ounces for 2010-2017 and 17,600 ounces for 2018 and beyond." EPA notes that, under CAMR, states submit "state plans" while, under CAIR, states submit "state implementation plans".
Response: The program has amended the proposed language as suggested.

Comment: Subsections (3)(C)2. and (3)(C)4.– Missouri refers to "Table 1," but the table is not labeled.
Response: The program has amended the proposed language as suggested.

Comment: Allocation Table – The allocations for Phase I and Phase II do not add up to the Missouri state budget totals for Phase I and Phase II respectively. Phase I adds up to 44,575 (is missing 1 allowance), and Phase II adds up to 17,602 (is over by 2 allowances). The allocations cannot exceed the State budget, so the Phase II allocations must be adjusted.
Response: The program has amended the proposed language as suggested.

Response to Comments of Empire District Electric Company.

Comment: The Empire District Electric Company (Empire) submits for the record these comments concerning draft proposed rules 10 CSR 10-6.362, 10 CSR 10-6.364, 10 CSR 10-6.366, and 10 CSR 10-6.368. Before proceeding to comments specific to each of these rules, Empire would like to thank the Missouri Department of Natural Resources for supporting the market-based principles of the Clean Air Interstate Rule and Clean Air Mercury rule, rather than potentially less beneficial, more expensive command-and-control approaches. We also than the department staff for working closely with stakeholders to develop methods for the allocation of allowances.
Response: The program appreciates the support of Empire and all of the workgroup members during the workgroup and rule process.

Comment: Empire opposes allowing Hawthorne unit 5 to use the 1.25 fuel adjustment factor to determine mercury allowance allocations. Hawthorne unit 5 was not in operation during the baseline period used to determine the state's mercury cap. Allowing Hawthorne unit 5 to be defined as an existing unit and to use the 1.25 fuel adjustment factor effectively tightens the mercury cap on every other unit in the state twice. Empire believes that the Hawthorn unit 5 heat input should be calculated in compliance with 40 CFR 60.5142(a)(1)(ii). This would recognize that Hawthorn unit 5's associated auxiliaries, generator and turbine were in existence before January 1, 2000, but also recognizes that the BACT controls required on the reconstructed boiler provide mercury control benefits.
Response: The program has adjusted the allocation table to reflect this and other comments received.

Comment: In paragraph (1)(B)3., the reference to paragraph (A)2. should be changed to (B)2. In paragraph (1)(B)3., the reference to paragraph (A)1. should be changed to (B)1. In paragraph (1)(B)3., the reference to subsection (B) should be changed to subsection

(C). In paragraphs (1)(C)1., 2., 3., 4., 5., 6., and 7., references to subsection (A) should be changed to subsection (B).
Response: The proposed rule has been amended to more clearly follow the format of other rulemakings. Thereby changing this provisions commented on.

Response to Comments of the City Utilities of Springfield.

Comment: City Utilities supports the current rule language of 10 CSR 10-6.368 but takes exception to the mercury allowance allocations in the table under section (3)(C)(2). Our primary objection focuses on the Phase I and Phase II allocations for the re-built Kansas City Power & Light (KCPL) Hawthorne 5A (H5A). The original Hawthorne Unit 5 is not the same unit when comparing its size or applicability criteria for the re-built Unit 5A. City Utilities believes the allocation ratio used to calculate mercury allowances for Hawthorne Unit 5A should be based on its "new" status over the compliance look-back period for the following reasons:

1. Hawthorne Unit 5 was originally commissioned in 1968 as a dual-fuel 500 MW (net) boiler. A natural gas explosion destroyed the boiler during a routine outage in February 1999. As a result of the explosion, KCPL permitted a replacement boiler *with a greater maximum design heat input* and applying the latest PSD/BACT emission controls. The new boiler was commissioned and placed in service in 2001. The USEPA CAMR EPA rule uses a commercial operation date of January 1, 2001 to distinguish new and existing sources for allowance allocation. Further, City Utilities is aware this definition was not incorporated by reference into the proposed rulemaking and requests its inclusion for clarity and potential legal challenges since the department is changing the regulatory definition.

2. USEPA allocated mercury allowances to the states based on actual unit-by-unit 1998-2002 heat input totals and certain assumptions on the efficiency of control measures. Using the 2000-2004 period to allocate unit allowances benefits KCPL, owing to the increased heat input to the larger Unit 5A. The unit should not receive an additional benefit by reclassifying it as an existing unit.

3. EPA also recognized the inherent difficulty and expense that older units (especially those units burning low-halogen/low sulfur coal) are likely to encounter in installing Hg controls. Accordingly, EPA applied a mercury adjustment factor of 1.25 for pre-PSD units burning low halogen/low sulfur coal. EPA also assumed that the Clean Air Interstate Rule (CAIR) will provide a 40% mercury removal co-benefit from the addition and combined affect of selective catalytic reduction (SCR) and flue gas desulfurization (FGD) to existing units. This concept is also recognized in the CAMR fuel adjustment factor of 1.00 for new units burning low-sulfur subbituminous coal with BACT versus a factor of 1.25 for PRB units not employing BACT. Because H5A installed BACT controls in conjunction with reconstruction, the unit has inherently lower Hg emissions.

4. While stakeholders agreed to use the "existing" status for H5A for purposes of the Missouri CAIR development, we feel that CAMR represents a different situation. First, all Acid Rain units (and by extension CAIR units) in the state are subject to similar regulatory and market pressures with respect to compliance with existing NOx caps (i.e. Acid Rain and 10 CSR 10-6.350). That is, the regulatory environment

under which the Acid Rain units have always operated has been relatively level and the issues were common to all players. This is not the case with mercury emissions where newer (PSD) units have a clear capture advantage.

In summary, by allowing for a revised heat input evaluation of the years 2000 to 2004, KCPL has already realized a disproportionate increase in CAMR allowances compared to the contribution of Hawthorne Unit 5 to the state (total) allocation. Further, since EPA considered Hawthorne Unit 5A to be a new unit when the mercury allowances were budgeted to the states, it should follow that the department act uniformly when determining the unit allocations for Missouri. The department should be consistent and assign a fuel adjustment factor of 1.00 (instead of 1.25) to H5A and distribute the difference among all CAMR units in the state. If the department chooses to classify H5A as an existing unit, then its allocation should be based on its original (pre-1999) heat input.
Response: The program has adjusted the allocation table to reflect this and other comments received.

Response to Comments of the Associated Electric Cooperative, Inc.

Comment: AECI supports the rule language of 10 CSR 10-6.368 but we take exception to the allocation tables under (3)(C)(2). Our exception focuses on the Phase I and Phase II allocations for the re-built Hawthorne 5A (H5A).

Hawthorne Unit 5 was originally commissioned in 1968 as a dual-fuel 600 MW (net) boiler. A natural gas explosion destroyed the boiler during a routine outage in February 1999. As a result of the explosion, KCPL permitted a replacement Boiler with PSD/BACT emission controls. This new boiler was commissioned and placed in service in 2001. In determining "New" vs. "Existing", EPA used an online date of January 1, 2001 as the date of record after which all units were to be determined new for the purposes of CAIR and CAMR.

When EPA divided the national CAMR budget to the states, they based the allocations on certain assumptions. The state allocations were based on actual unit-by-unit heat input totals (from 1998-2002) where states with more aggregated heat input were allotted a larger mercury budget. States with lower heat input were allotted a lower mercury budget (Note: the Missouri budget was based on heat input totals from the impaired operation of H5A). By changing the look-back years to 2000 – 2004 (from 1998 – 2002), KCPL has already benefited greatly due to the higher heat input of the rebuilt boiler as compared to the heat input of the original unit. For comparison, Hawthorne Unit 5 reported an annual heat input of 20,633,908 in 1998 (1998 is the only complete year of Unit 5 operation in the EPA look-back range). The average of the three highest years from the revised look-back years of 2000 to 2004 results in a heat input value of 45,267,664. An increase of more than 110%. In addition, the recently does not allocate NOx allowances to the unit because it came on line after January 1, 2001. It is reasonable to assume that a CAMR FIP would result in no mercury allowances whatsoever for H5A.

EPA also recognized the inherent difficulty and expense that older units would contend with when complying with CAMR (especially those units burning low-halogen/low sulfur coal). In doing so, EPA applied a mercury adjustment factor of 1.25 for pre-PSD

units burning low halogen/low sulfur coal (such as that from the Powder River Basin). Further, EPA assumes that when CAIR is fully implemented, mercury reductions will be reduced by the addition and combined effect of selective catalytic reduction (SCR) and flue gas de-sulfurization (FGD) to existing units. The CAIR co-benefit is assumed to be on the order of 40% mercury control due to the combination of SCR and FGD. This concept is also recognized in the (CAMR) fuel adjustment factor of 1.00 for new units burning low-sulfur subbituminous (predominantly PRB) coal with BACT versus existing PRB units without BACT where a fuel adjustment factor of 1.25 is assigned. Because H5A went through BACT as a result of re-construction, the unit has inherently lower Hg emissions and should not further benefit by a fuel adjustment factor of 1.25.

It is true that stakeholders agreed to existing status for H5A under the Missouri CAIR rule development. This was appropriate for two reasons. First, all Acid Rain units (and by extension CAIR units) in the state are subject to similar regulatory and market pressures with respect to compliance with existing NOx caps (i.e. Acid Rain and 10 CSR 10-6.350). That is, the regulatory environment under which the Acid Rain units have always operated has been relatively level and the issues were common to all players. This is not the case with controlling mercury emissions where newer (PSD) units have a clear capture advantage. Secondly, there are no adjustment factors involved with the budgeting scheme under CAIR, and thus no overlap in a discussion about CAMR allocations.
Response: The program has adjusted the allocation table to reflect this and other comments received.

Response to Comments of Ameren.

Comment: As a general comment, Ameren strongly supports the stakeholder process adopted by the Air Pollution Control Program to develop the proposed regulations. The stakeholder process provides an opportunity for all interested parties to participate in the rulemaking and communicate their concerns to the Air Program. Ameren supports implementation of the federal Clean Air Interstate Rule and the Clean Air Mercury Rule including the adoption of the trading programs. We look forward to continued open dialogue with the Program to finalize the rules and implement the federal programs.
Response: The program appreciates the support of Empire and all of the workgroup members during the workgroup and rule process.

Comment: Ameren supports the proposed rule "Control of Mercury from Electric Generating Units" with the exception of the allowance allocation methodology for units considered as "new units" after January 1, 2001. Ameren also provides updated baseline emission data for AmerenUE units specifically Meramec units 3 and 4. The updated emission data is submitted as an Excel file. The updated emission information for Meramec units 3 and 4 indicate that the fuel adjustment factor should be changed to accurately reflect the percentage of subbituminous coal burned during the baseline period. Ameren supports the concept of permanent mercury allowance allocations and their inclusion in the rule. The updated emission data may alter the allowance allocations for certain units.

As mentioned, Ameren opposes the allowance allocation methodology used for units that are considered as "new units" after January 1, 2001 in accordance with the federal Clean Air Mercury Rule (70 FR 28605). The comment centers on the mercury allowance allocations for Phase I and Phase II for Hawthorne Unit 5A. Ameren believes that

Hawthorne Unit 5A should be considered a new boiler for the purpose of determining allowance allocations and as such the fuel adjustment factor should be 1.0 instead of 1.25.

Hawthorne Unit 5A was destroyed by an explosion in February 1999. The boiler was rebuilt after the explosion and was permitted as a new boiler with PSD/BACT emission controls. It is our understanding that the new boiler was commissioned and placed in service in June 2001. In the final Clean Air Mercury Rule, the USEPA determined that the cut-off on-line date for an existing unit was January 1, 2001 (see 70 FR 28628). The USEPA further determined that fuel adjustment factors by coal type were appropriate for existing units but not for new units (see 70 FR 28628).

The USEPA established state mercury budgets based on historic heat input and fuel adjustment factors for existing units. New units, on-line after January 1, 2001, "do not receive an adjustment to their allocated share of the allowances" (see 70 FR 28622). The state budget allocations were based on actual unit-by-unit heat input totals for the years from 1998 through 2002. States that had a higher total heat input were allotted a larger mercury budget. States with lower heat input were allotted a lower mercury budget. The proposed state rule uses a look back period of 2000 through 2004 instead of the period of 1998 through 2002 that was used by the USEPA to allocate the state budgets. Hawthorne Unit 5A has already benefited by an increase in the baseline heat input compared to the baseline used by the USEPA to determine the state budget for mercury allowances. The unit has also benefited by receiving a mercury allowance allocation under the state proposed rule. The unit was considered to be a new unit by USEPA when the state mercury allowance budgets were allocated. It is not equitable to the other affected units in the state to allow the use of the fuel adjustment factor of 1.25 in addition to the adjusted baseline heat input period and the allocation of mercury allowances to the unit.

The Program should be equitable and consistent and assign a fuel adjustment factor of 1.0 to the baseline heat input for Hawthorne Unit 5A. The mercury allowance allocations for all affected units should be adjusted accordingly.
Response: The program has adjusted the allocation table to reflect this and other comments received.